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Jesus Orduna

Education

Ph. D. in Experimental High Energy Physics

Research conducted at the DØ Experiment. Based at Fermilab since 2006 to work on analyses within the B-Physics group and to contribute to DØ detector operation activities. Developed knowledge on computing techniques applied to analyses in High Energy Physics with primary participation in the search for the heavy baryon Ω_b^- and trigger studies within the B-Physics group with DØ data. Also acquired extensive experience in the operation of the DZero detector and provided service as expert for the silicon detector and monitoring tracking and data acquisition systems. Thesis reports the first observation of the b-baryon Ω_b^- by the DØ Collaboration in 2008. Graduated in February 2011.

B. Sc. in Aeronautics

Developed technical knowledge of technologies used in the design and management of modern flight vehicles including aerodynamics, propulsion, avionics, structural analysis and materials science.

Work Experience

Postdoctoral Research Associate. Rice University, February 2011 to date.

B-physics analysis and detector operation with major involvement in the DØ luminosity and tracking groups. Various support activities for the DØ Collaboration: MC coordination and cluster administration. Research and development for the tracking detector for the Mu2e experiment, consisting in outgassing measurements and leak tests for various components to be used in the detector. Software and simulations for the system expected to monitor the beam extinction requirements and participation in beam test data taking. Also involved in Fermilab outreach activities.

AeroMexico. 2005

Design and implementation of software to program engineering orders for the whole fleet. Verification of fulfillment of the engineering orders and services applied to the fleet at the maintenance stations based at MEX, GDL and GRU airports.

Experience within High Energy Physics

Mu2e Activities.

Active member of the tracking detector group. Involved in development of techniques for leak testing of the straw-tube material to be used in the tracker (2012-2013), determination and analysis of outgassing in vacuum for different materials expected to use in the construction of the tracking detector (2013 to date) and the update of geometry at software-level and tracking algorithm for the extinction monitor (2013 to date). Collaboration in the first test beam data taking for the upstream extinction monitor and the cosmic ray veto systems (2013).

Cluster Administration, DØ.

Co-administrator responsible for monitoring, update and maintenance of the computing cluster of the DØ Collaboration (clued0), comprising around 400 individual nodes running Scientific Fermi Linux 5 and 6, and to provide technical support for the users of the cluster (2012 to date).

MC Coordination, DØ.

Co-coordinator responsible for review, approval and monitoring of the MC requirements for the whole collaboration (2012 to date).

Luminosity Expert, DØ.

Main activity during the first year of postdoctoral appointment. Pager carrier with availability around-the-clock as primary expert. Developed and implemented an interface to help experts visualize in real time the status of the HV in the luminosity system via a web browser (2011).

Silicon Tracker Expert, DØ.

Pager carrier with availability around-the-clock as primary expert to analyze and solve problems and support tracking shifters about the silicon system. Covered nine weeks as primary expert and a few more as a secondary expert. Provided training for new tracking shifters and support during access to the detector to maintain the operation of the system. Some contributions in hardware testing. (2008-2011)

Experience within High Energy Physics (continuation)	Tracking System, DØ.	Extensive experience as tracking shifter. Monitoring and operation of the Central Tracking System. While on shift, in charge of the following systems: Silicon Microstrip Tracker, Silicon Trigger Tracker, Central Fiber Tracker and Central Track Trigger.
	Data Acquisition, DØ.	Extensive experience as DAQ shifter. Responsible for the monitoring of continuous flow of data to be recorded. Identification and analysis of problems, as well as prompt addressing in order to minimize downtime. Developed an additional source of quick information used by DAQ shifters on a daily basis during normal operation. Provided training and support for new DAQ shifters.
	Analysis, DØ.	Measurement of the B_s^0 lifetime in the decay channel $B_s^0 \rightarrow J/\psi(1S) f_0(980)$. Development of fitting tools to distinguish different background components, as well as the development of Monte Carlo studies for code validation (2011-2013).
Honors and Awards	Researcher Level-I	Awarded by the National System of Researchers, Mexico.
	Postdoctoral Research Award 2012-2013	Awarded by the Mexican National Council of Science and Technology.
	Postdoctoral Research Award 2011-2012	Awarded by the Mexican National Council of Science and Technology.
Selected Publications	“The $\mu 2e$ Experiment at Fermilab”	
	J. Orduna.	On behalf of the Mu2e Collaboration. Proceedings for the 3 rd National Workshop of the High Energy Physics Network. In preparation.
	“Mu2e Conceptual Design Report”	R. J. Abrams et al. (Mu2e Collaboration). arXiv: hep-ex/1211.7019
	“The DØ Run IIb Luminosity Measurement”	B. C. K. Casey, M. Corcoran, K. DeVaughan, Y. Enari, E. Gallas, I. Katsanos, J. Linnemann, J. Orduna , R. Partridge, M. Prewitt, H. Schellman, G. R. Snow and M. Verzocchi. DØ Luminosity Group. Nucl. Instrum. Meth. A 698, 208 (2013)
	“Radiation Damage Studies and Operation of the DØ Luminosity Monitor”	J. Orduna and M. Prewitt. On behalf of the DØ Luminosity Group. Click here to access proceedings: Physics Procedia 37 (2012) 2047-2054.
	“Observation of the Doubly Strange b-Baryon Ω_b^- with the DØ detector”	J. Orduna. On behalf of the DØ Collaboration. Click here to access proceedings: PoS EPS-HEP 2009, 217 (2009)
	“Observation of the Doubly Strange b-Baryon Ω_b^-”	V. M. Abazov et al. (DØ Collaboration). Click here to access: Phys. Rev. Lett. 101, 232002 (2008). Click here to access arXiv: hep-ex/0808.4142
Talks at Meetings and Conferences	“The $\mu 2e$ Experiment at Fermilab”,	invited plenary.
	J. Orduna.	on behalf of the Mu2e Collaboration. 3 rd National Workshop of the High Energy Physics Network. January 23-28, 2014. Guanajuato, Guanajuato. Mexico.

**Talks at
Meetings and
Conferences**

“Search for the rare decay $B_s^0 \rightarrow \mu^+ \mu^-$ at DØ”

J. Orduna. On behalf of M. Prewitt and the DØ Collaboration.

APS April Meeting 2013.

April 13-16, 2013. Denver, CO.

“ B_s^0 lifetime measurement from the decay $B_s^0 \rightarrow J/\psi(1S) f_0(980)$ ”

J. Orduna. On behalf of the DØ Collaboration.

APS April Meeting 2013.

April 13-16, 2013. Denver, CO.

“Radiation Damage Studies and Operation of the DØ Luminosity Monitor”

J. Orduna. On behalf of the DØ Luminosity Group.

Technology and Instrumentation in Particle Physics 2011.

June 9-14, 2011. Chicago, IL.

[Click here to access the slides from the Indico server \(10.94 MB\).](#)

“Observation of the Doubly Strange b -Baryon Ω_b^- with the DØ Detector”

J. Orduna. On behalf of the High Energy Physics group of the Physics Department at CINVESTAV, Mexico City.

Advanced Summer School 2010. CINVESTAV.

July 26-30, 2010. Mexico City.

“Observation of the Doubly Strange b -Baryon Ω_b^- with the DØ Detector”

J. Orduna. On behalf of the DØ Collaboration.

European Physical Society, HEP 2009.

July 16–22, 2009. Kraków, Poland.

[Click here to access the slides from the Indico server \(7.4 MB\).](#)

“Observation of the Doubly Strange b -Baryon Ω_b^- ”

J. Orduna. Poster on behalf of the DØ Collaboration.

XXIV International Symposium on Lepton Photon Interactions at High Energies.

August 17–22, 2009. Hamburg, Germany.

[Click here to access the poster from www-dØ \(6.0 MB\).](#)

“Observation of the Doubly Strange b -Baryon Ω_b^- ”

J. Orduna.

Advanced Summer School 2009. CINVESTAV Mexico.

July 27–31, 2009. Mexico City, Mexico.

[Click here to access the poster from www-dØ \(7.0 MB\).](#)

“Observation of the Doubly Strange b -Baryon Ω_b^- ”

J. Orduna. Poster on behalf of the DØ Collaboration.

42nd Fermilab Users Meeting.

June 3–4, 2009. Batavia, IL. USA.

[Click here to access the poster from www-dØ \(9.2 MB\).](#)

Fermilab Outreach

“Frontier Science Result: DZero”

Spanish version of Fermilab Today's column linked from the original articles.

October 2013 to date.

**Fermilab Outreach
(continuation)**

“Tour of the DZero Collision Hall and the Adjacent Tevatron”

Tour guide for Fermilab’s Saturday Morning Physics program and the DØ outreach efforts. Showing visitors the DØ collision hall, Tevatron tunnel and the ongoing construction of detectors for future experiments at the DØ assembly building.

February 2013 to date.

“2014 Family Science Days”

Volunteer at the Fermilab exhibit during the AAAS Annual Meeting to introduce kids and family members to STEM and in particular Fermilab scientific endeavors.

February 15-16, 2014. Chicago, IL.

**Other
activities**

“US High Energy Physics DC Trip 2014”

Joint effort between the users organizations from Fermilab, SLAC and US-LHC, to garner support for funding of physical science research in general and HEP in particular.

March 25-28, 2014. Washington, DC.

“Fermilab Student and Postdoc Association (FSPA)”

Elected officer for the one-year term 2013-2014 to represent the community of Fermilab students and postdocs. Liaison between FSPA and the Users Executive Committee to coordinate the organization of the 47th Fermilab Users Meeting and its poster session and the New Perspectives 2014 conference. Also, social, academic and sport activities with budget from Fermilab Research Alliance LLC.

“DØ Data Preservation”

Coordinated the scanning of all the existing hard copies of internal DØ Notes to be stored in INSPIRE for their public release (2012-2013).

Software

C++	TMVA	ROOT	RooFit	Bash
Linux	CAD	LaTeX	Python	OS X
XCode	Objective-C	Cocoa	Html	

Languages

Spanish, English and basic knowledge of German, Russian and Italian.

A complete publication list is available through INSPIRE-HEP: **Find A Orduna, J.** [Click here to retrieve.](#)